

## NATIONAL UNIVERSITY OF UZBEKISTAN ON THE THRESHOLD TO SMART UNIVERSITY

SIROJIDDINOVSH.S<sup>1</sup>, ELOV B.B<sup>2</sup>

<sup>1,2</sup>National university of Uzbekistan, Tashkent, Uzbekistan

### ABSTRACT

*The article discusses the informational system of "administering educational process" developed and implemented at the National University of Uzbekistan named after MirzoUlughbek.*

**KEYWORDS:** Information System, Smart Education, Educational Process, Cryptographic Information Security.

**Received:** Feb 22, 2016; **Accepted:** Mar 09, 2016; **Published:** Mar 14, 2015; **Paper Id.:** IJCSEITRAPH20164

### INTRODUCTION

The report is devoted to demonstrating informational system of administering the educational process of the National University of Uzbekistan named after M. Ulughbek(NU Uz).

When administering the NU Uz, the main processes that must be controlled are teaching, creating new educational technologies, scientific researches, and project work. The basic process is teaching. While realizing this process, a student acquires necessary competences. To meet modern educational standards and prepare actual specialists, the NU Uz has to maintain the process of "creating new educational technologies". This process results in new educational technologies, that can be used both at the NU Uz, and in the market of educational technologies.

The NU Uz has approached the stage of transferring to Smart Education. The transfer to it is characterized with the development of Internet resources integration mechanisms. Smart Education is the evolution of the educational process, due to the services of evaluating material quality, and the growth of content delivery channels.

In order to understand what smart education is, we need to study the conditions for the world information community's switch to creating smart educational environment. Modern society, knowledge society is the social medium in which institutions and organizations create possibilities for people and information to develop without any obstacles, and open up horizons for mass production and mass usage of all types of knowledge on the scale of the whole society. Forced to exist in conditions of permanent impetuous growth of the world information, and consequently, its permanent obsolescence, the society cannot operate with the means of traditional education any longer, when the majority of the educational content lags behind the newly created and used types of technologies for two or three generations. Thus methods and technologies of e-teaching serves as so-called foundation on which quality education can be assured in all spheres of the life of society. So thanks to the development of information technologies, educational paradigm "student - teacher" is transforming gradually to "student - knowledge" which

<sup>1</sup>National university of Uzbekistan, Tashkent, Uzbekistan, rektor@nuuz.uz

<sup>1</sup>National university of Uzbekistan, Tashkent, Uzbekistan, ebb@mail.ru

makes it possible to discuss the switch to the new stage in the development of e-education - Smart Education.

In the report, we study social - informational factors influencing significantly on the formation of modern educational and research environment at NUUz; analyze most progressive information technologies and services that commence to be actively used in the process of preparing scientists and researchers; present conceptual approaches to the construction of a single informational platform of the NUUz by forming corporative communication infrastructures (smart - university).

The main principles of creating smart university include combination of social orientation, mobility, accessibility, manageability, and processibility. Further will be presented the results achieved by the NUUz in this sphere, as well as perspective ways of developing smart -university depending on the organizations types and methods of constructing infrastructure.

### **Informational System of Administering the Educational Process at NUUz**

The complex of the tasks that must be carried out by informational system of administering NUUz is created to provide automatic management of all spheres of the activity of NUUz, starting from finding solutions to educational process organization problems and ending with doing additional tasks not connected directly with the educational activity (fee payment, and etc.) carried out by the NUUz.

By task we suppose the independent complex of organizational, technological, programming, and technical provision of the process. Realization of the tasks is presented in the form of one or a number of programming products (modules). Further comes the list of the tasks of informational administration system of the NUUz with a brief description of each task's purpose.

#### ***"Formation of Educational Programmes"***

Formation of educational programmes of the NUUz is aimed at the development of the unique system of preparing students subject to the resource limitedness and purposed to fulfill educational tasks. The task is also aimed at provision of actuality of the information about educational courses in the informational system (IS). It is a totality of actions of fixation in the IS, possible for course conduction, and renewal of their parameters in concord with the solutions chosen responsible for disciplines and course owners.

#### ***"Formation of Administrative Curriculum of The Nuuz For The Realization of Syllabi Subject to the Material Technical Foundation and the Teaching Staff"***

The current task is aimed at the provision of parameters of using educational programme in the academic process - such as selection of academic courses, MTR (material technical resources), teachers, and students during a fixed period of time (the period of administrative planning). The function is also aimed at identifying a general regime of conducting educational meetings in the whole NUUz framework.

#### ***"The Formation of a Weekly Schedule Subject to the Current State of the MTR and Teaching Staff Individually for Each Student"***

The task of forming a weekly schedule is aimed at identifying the period of time during which teachers and students use classrooms for educational meetings and realization of the educational methodological material (in cases when education is conducted in the general resource base).

***"Record of Material - Technical Resources of the Educational Process"***

The task of the record of material - technical resources of the educational process realizes the accounting of classrooms - the process of providing the accordance of the information about classrooms in the informational system with the real state. The procedure is necessary for planning educational process and solving resource conflicts that might appear. It makes possible to account the classroom fund of the educational establishment used in the educational process and provides distribution of the needed classrooms.

***"The Record of the Teaching Staff"***

The task of the teaching staff record is needed to include teachers into the educational process. Teaching staff means both full time and part time teachers.

***The Record of the Client of NUUz***

The task of the record of the clients of a higher educational establishment is important for the formation of formal (legal and financial) relationships with clients, to include them into the educational process of the NUUz and providing official communication with them. By clients we mean students - physical bodies participating in the educational process of the NUUz, and their trustees - both physical and juridical bodies.

***Individual record of the results of the educational process***

This task is aimed at evaluating the results of participation of students in the educational courses for monitoring the success of students in the academic courses.

***Record of educational -methodological material***

The task of recording educational - methodological material allows to solve the problem of enriching academic courses with methodological material.

***Fixation and analysis of education fee***

The task of the fixation and analysis of the educational fee is aimed at recording and analyzing financial incomes of the NUUz from realizing the main (educational) activity.

***Formation of the reporting documentation at NUUz***

The task of forming reporting documentation at NUUz is aimed at preparing documents of the state sample witnessing on successful/partial completion of educational programme by students, as well as to keep record of the given documents.

***Internal documentation record***

This task is required for the record of administrative documents and their progression in the life cycle. By administrative documents we mean documents that are necessary for the presentation to the administration of the organization officially (with registration), and these document lead to the fulfillment of some actions within the organization .

This approach will help to form educational and scientific-research environment of the future high school at the qualitatively new level, and construct the system of administering the NUUz in concord with the tasks it fulfills, and

following modern tendencies in the sphere of information technologies, pedagogy, sociology, economics, and etc.

### **National CSP**

The means of cryptographic information security "NUUz - CSP" version 1.1 (further - "NUUz -CSP") described in [2] is aimed at creating keys of coding, closed and open keys of electronic digital signature (EDS), creating and confirming the authenticity of EDS, hashing, coding, and authentic security of the data using algorithms described in [3-8].

"NUUz CSP" can be used in telecommunication nets, information systems of general usage, state corporative information systems by installing into applied attachments providing storing, processing and transmitting information that does not contain data included into state secrecy, as well as in information exchange and providing legal importance of electronic documents.

#### **"NUUz CSP" carries out the following main functions:**

Formation of the keys for realizing and checking electronic digital signature (EDS) by algorithms 1 and 2 UzSSSt 1092:2009[5] and algorithm GOST P34.10-2001[8];

Hashing the spheres of operative memory and other data using algorithm 1 with parameter  $p = 256$  O'zDSt 1106:2009[4] and algorithm GOST P34.11-94[8]

Formation and checking the results EDS in concord with the algorithms 1 and 2 O'ZSt 1092:2009[5] and algorithm GOST P34.10-2001[8]

Formation of coding keys for information coding algorithm O'zDSt 1105:2009 [3] and GOST algorithm 28147-89[6]

Coding the areas of operative memory and other data in concord with the data coding algorithm O'zDSt 1105:2009[3] and algorithm GOST 28147-89[6]

Working with the key information kept in the exterior data carrier.

The "NUUz CSP" provides the support of the majority of cryptographic algorithms used currently.

"NUUz CSP" can be used as a CSP on default for the operational system Windows, besides supporting cryptographic algorithms of the Republic of Uzbekistan and Russian, "NUUz CSP" also supports some generally accepted and used OS Windows cryptographic algorithms, such as RSA, 3DES, SHA-1, and others.

Currently, "NUUz CSP" is used to provide information security for the information system of administering the educational process at NUUz.

### **CONCLUSIONS**

Transition into Education's Moodle stage by stage based on Electron Education System serves to implement modern pedagogical and information technologies into educational process and to improve quality of lessons by immediate updating relevant materials. It is important to note that its call of the times to integrate current world educational standards and essential innovative foreign expertise into education system of Republic of Uzbekistan. It is our duty to form harmonious, national education system, which is fully compatible with local and world's leading educational standards and

at the same time to preserve and develop our own outstanding “it’s only ours and unique” - national peculiarities created in the Higher Education System of our country.

#### REFERENCES

1. Tuomi, I. *Open educational resources and the transformation of education. European Journal of Education*, – vol. 48. – № 1. – 2013. – p. 59-78.
2. Aloev R.D., Alaev R.H., Nurullaev M.M. *Course book of cryptographic provider based on national standards. Bulletin of National university of Uzbekistan*, No 2, 2013, P. 32-35
3. *State Standard of Uzbekistan 1105:2009. State Standard of Uzbekistan. Information Technologies. CRYPTOGRAPHIC PROTECTION OF INFORMATION. Algorithm of data encryption.*
4. *State Standard of Uzbekistan 1106:2009. State Standard of Uzbekistan. Information Technologies. CRYPTOGRAPHIC PROTECTION OF INFORMATION. Function of hashing.*
5. *State Standard of Uzbekistan 1092:2009. State Standard of Uzbekistan. Information Technologies. CRYPTOGRAPHIC PROTECTION OF INFORMATION. Process of forming and checking electron coded signs.*
6. *State Standard 28147-89- Systems of handling information. Cryptographic protection. Algorithm of cryptographic alteration.*
7. *State Standard P 34.11-94- Information technologies. Cryptographic protection of information. Function of hashing.*
8. *State Standard P 34.10-2001- Information technologies. Cryptographic protection of information. Process of forming and checking electron coded signs.*
9. Petra Poulouva, Marcela Sokolova&Ivana Simonova (2010). *ICT Contribution to the Process of E-learning Implementation in the Field of Education. Proceeding of Advanced Educational Technologies. 6th WSEAS/IASME International Conference on Educational Technology (EDUTE'10). Pp 157-161*

